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ABSTRACT

This study looks at the effect of native speaker (NS) teacher input on limited-English-proficient (LEP) students' access to classroom speech events. It seeks to determine whether content area teachers modify their talk when interacting with LEP students in the classroom. The study also seeks to describe such modifications and establish whether they determine the level of interaction by LEPs in the classroom. It builds on similar research conducted on the casual interaction of NS and LEP individuals in the workplace, where it was found that certain NS modifications hinder the LEPs participatory role in the speech event. There is evidence to support the belief that NS content area teachers are modifying their discourse in interactions with LEP students in ways that reduce the students' opportunities for interaction. If this is indeed the case, then current research should be expanded to devise a training agenda that can teach content area teachers to alter their discourse strategies in talk to LEPs to create more productive and responsive speech environments. Numerous data tables and charts are included. (Contains 20 references.) (KFT)

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Teacher input and the marginalization of limited-English-proficient students
AAAL Conference, March 1996, Chicago, Illinois
Lorrie Stoops Verplaetse

The problem: interaction and access to speech events

This study looks at the effect of native speaker (NS) teacher input on limited-English proficient students' access to classroom speech events. It seeks to determine whether content teachers modify their talk when interacting with limited-English proficient (LEP) students in the classroom. If modifications do occur, this study seeks to describe the modifications and to establish whether these modifications determine the level of interaction by LEPs in the classroom.

The research questions

This research builds from the work of Verplaetse (1993), an analysis of adult NS input in casual workplace conversations with other NSs and with non-native speakers (NNSs). In this work Verplaetse found that certain NS modifications hinder the NNS's participatory role in the speech event. Specifically, the modifications reduced the NNSs' opportunities to speak by hindering their co-construction of the text. Furthermore, the modifications limited the opportunities to establish rapport by restricting the use of personal detail, thus insufficiently ratifying the NNS's positive face needs, those needs to be accepted, or approved of (Brown & Levinson, 1978, 1987). The research questions for this study continue to focus on the issues of opportunities to speak and positive face needs. The questions read:

1. Do Native English Speaking teachers interact with their English Proficient (EP) and limited-English Proficient students differently? Specifically, do teacher's discourse strategies which facilitate or inhibit a student's opportunities to talk as frequently and as purposefully as his/her classmates differ for EP and LEP students?
2. Do NS teachers ratify the positive face needs of their EP and LEP students differently? Specifically, do a teacher's discourse strategies which function to indicate interest in students' thoughts, in their comments, and in the students, themselves differ for EP and LEP students?
3. If discourse strategies differ for EP and LEP students, why are such modifications occurring?

Assumptions re: the importance of interaction

This paper develops from four working assumptions regarding how interaction is important to a student's development.

1) The classroom is tripartite in nature. That is, acquisition of the social and communicative strategies needed to gain access to the content are acquired simultaneously during the learning of the academic content. (Mehan, 1978).

2) While no claim is made regarding interaction and academic achievement, interaction allows the student the opportunity to share in the co-construction of knowledge (Wertsch & Toma, 1990).

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3) With regards to higher level academic communicative skills, interaction provides a learner the repeated practice needed to develop this communicative competency (Hall, 1993; Snow, 1990). And,

4) With regards to social role definition, interaction determines the level of co-membership a student is to experience with the group (Zuengler, 1993).

Research methodology

This study is an analysis of teacher talk in the content classroom. Data collected for this study include 13 hours of transcribed classroom discussions, field notes from classroom observations, and the notes and tapes of interviews with teachers and selected LEP students.

Three native English speaking science teachers (grades 6-12) were observed. These teachers came recommended for their caring, interactive approaches with LEP students. Selected LEP students were also interviewed and given the opportunity to produce extended, high-level cognitive talk.

Brief descriptions of the teachers, their styles, and their LEP students are listed in Appendix A.

Text analysis

It is important to note that this study makes no cross-teacher comparisons. Each teacher establishes his/her own base-line for comparison, determining how that teacher talks to EP students compared to LEP students. This eliminates a weakness found in the majority of NS-NNS studies, where comparisons have been made of talk varying across subjects or speech events.

Coding System

The coding system used in this study is a modified version of the Sinclair and Coulthard (1975) system designed for English speaking classrooms. A full description of the coding system is found in Appendix B for future reference. Teacher utterances are coded for one of four move types: the Initiation move, the Response move, the Feedback move, and a Scaffolding/Initiation move. The utterances are also coded for act type. For this paper, I will focus on two acts - the elicitation and the directive to action.

The function of a directive to action is to elicit a non-verbal response. It is most often realized by an imperative. "Don't forget to wipe off the mineral sample," and "You need to measure the mass of the clay," are examples of directives.

The function of an elicitation is to elicit a linguistic response. It is most often realized by a question, statement, or imperative. Examples of elicitations are "Which is the dominant trait", "Debbie, tell us which is the dominant trait", and "Show us on the board how you determined the dominant trait".

Both directives and elilcitations are found in all four move types. the specific function of an elicitation varies, dependent upon its move type. In the Initiation move, the elicitation initiates a new transaction. The other three types of elicitations expand existing transactions in one of three scaffolding functions. The three scaffolding functions are described at the bottom of Appendix B. They are as follows: Response elicitations reverse the direction of inquiry by responding to a student question with another queston; Feedback elicitations reformulate a student answer which was either incorrect or insufficient; and

Scoffolding-Initiation elicitations further challenge a student in an ongoing transaction after a successfully completed exchange.

Elicitations are also coded for i) their cognitive levels; ii) whether they are open-ended or closed, and iii) whether they are display (answer-known by teacher) or referential (answer-unknown).

Analysis

An analysis of the frequency counts of the coded elements was then conducted using the chi-square. To compensate for the disproportionate size of the EP and LEP student groups, the frequencies analyzed are distributional proportions of acts rather than simple frequency counts. For example, a count of Feedback elicitations to LEP students is analyzed in its proportion to the teacher's total number of Feedback acts to LEP students. It is this ratio that is compared to its equivalent proportion in same teacher's talk to EP students.

Answers to each of the Research Questions were determined by the following frequencies. Those highlighted in bold will be discussed in detail in this paper.

For Question #1, with regards to opportunities to speak as frequently as other classmates the answer was determined by:

1) the distribution of directives vs. elicitations in teacher's overall speech and in Initiation-only moves.

2) the frequency of turns and the methods of turn allocations.

With regards to opportunities to speak as purposefully, the answer was determined by:

3) the cognitive levels of overall elicitations and Initiation-only elicitations, and

4) the distribution of open-ended and closed questions.

The answer to Research question #2, with regards to positive face needs, that is,' teachers' reactions to students' answers and to students themselves was determined by:

1) the frequency of scaffolding elicitations,

2) the cognitive levels of scaffolding elicitations, and

3) the distribution of display and referential questions.

Findings

A summary of the findings follow. Specific findings are detailed in Appendix C.

1. Distribution and frequency of elicitations varied among the three teachers. This was largely due to the high variation of elicitation use dependent upon participant structures. Generally, in teacher-fronted, full class discussions (as opposed to small group labs), LEP students received fewer elicitations. For example: As Table 1 shows, the opportunities for LEP students to interact in Teacher B's classes were extremely varied and highly dependent on participant structure. On the first lab day (labeled "lab.1"), LEP students received more actual elicitations than all the EP students combined (15 to EP; 19 to LEP). However, on the second lab day, "lab.2", LEP interaction was seriously restricted (with 1 elicitation issued to LEPs). On the class day labeled "circle review" during a full-class discussion in which turn allocations were highly structured, the LEP opportunities were proportionate to the EP opportunities (70 to EP and 17 to LEP). However, in another full-class discussion which was less structured, LEP students again received only 1 elicitation.

Teacher B

Class	EP (n=14)	LEP (n=3)
lab.1	15	19
circle review	70	17
discussion	69	1
lab.2	32	1
Total:	186	38

Table 1: Distribution of all elicitations(I.S.R.F) according to participant structure

Another example of how the participant structure shaped the use of elicitations is shown in Table 2 . Teacher C's full-class discussions resulted in extremely limited interaction opportunities for LEP students (only 4 elicitations out of the entire observation time); in contrast, small group lab events were highly interactive for the LEP students (31 elicitations to LEP; 53 to EP).

Teacher C

Class event	EP (n=18)	LEP (n=3)
class discuss.	42	4
small grp/lab	53	31
Total	95	35

Table 2: Distribution of all elicitations according to participant structure
(in all moves: I.S.R& F)

2. Returning to the findings, in all types of transactions the LEP students were given directives to action more often.

3. Moreover, LEP students were asked fewer open-ended questions than EP students.

4. In moves that initiated transactions, LEP students were asked fewer high cognitive level questions; and for the one teacher who frequently used high level questioning in his scaffolding moves, LEP students again received proportionately fewer of the high level questions.

5. On the other hand LEP students received more referential (answer-unknown) questions, particularly during small group/lab classes. But these questions were primarily about lab processes and following lab directions, not about the content of the lab experience.

The following three transcripts demonstrate the teacher's greater use of elicitations with EP students and directives to action with LEP students. The texts also exemplify the differential use of higher cognitive elicitations. In these three transactions we see Teacher A as he visits small groups of students who are busy comparing the density of a styrofoam peanut to the density of water. In the first transaction, Transcript 1, Teacher A talks with two EP boys.

Transcript 1

1		((walks over to Jimmy and Allen, who are working together))
2	J or A:	We got the weight of one of the styrofoam.
3	T:	You got the weight of wo-,
4		how did you do that?
5	A:	((giggling)) we looked very closely
6	T:	So, are you questioning how accurate that is?
7	J:	No
8	A:	Cause it was right on like, we had it directly as zero. Then when we put it on it moved like the tiniest thing. then we got it to zero again.
9	T:	What do you think would happen if you put maybe ten of those on?
10	A:	It would be way more, like maybe 30=
11	T:	=Could you find the mass of one if you put on ten? ((Allen walks off to get more popcorn pieces.))
12	J:	They're not all the same.
13	T:	They're not all the same.
14		Yeah.
15		Let's see if that changes your number.
16		That's a good point Jimmy,
17		I don't know. ((T goes off to other groups.))

Jimmy initiates the discussion by saying they got the weight of one styrofoam peanut. Then in line 4 T initiates further interaction by asking them to explain how they got the weight. Allen's response is insufficient for the teacher; and in line 6, T follows up with another challenging question, "So are you questioning how accurate that is?" Allen's answer in line 8 is a sufficient one. Yet in lines 9 and 11, T challenges the boys again with two more

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high cognitive level speculative questions asking "What do you think would happen if you put maybe ten of those on?"

Transcript 2, comes from the same event. T approaches a group of EP girls to assess their progress.

Transcript 2

1	T:	W[illegible]t did you get for the mass of the styrofoam?
2	Mar:	Mass? point 202
3	T:	Can you show me that?
4	M:	Did it in the water.
5	T:	You did it in the water?
6		Can we find the mass of the styrofoam just by placing it on the graduated cylinder? ((T means triple-beam balance, not graduated cylinder))
7	M:	No, we can't.
-----	---	((side conversation amongst the girls about the topic they were on before T came up to them, the weighing of the water in the cylinder))
8	T:	Why can't you just put this on here ((putting popcorn on balance)) to find its mass?
9	M:	Cause it won't go up and down ((as she puts cylinder on balance))
10	T:	and it will go up and down if this is on here? ((referring to cylinder))
11	M:	((shakes head yes))
12	T:	((purses lips as if to say "Oh")) Fascinating ((walks off))

In line 1, T initiates the conversation by asking them for one of the measurements. This is a typical way for T to initiate transactions with students as he moves from group to group; he asks them a question about what they have discovered. In line 3, his immediate response to Marielle's answer is to challenge her to show him how she arrived at her measurement. M provides a less than satisfactory explanation claiming they measured it in the water. In line 6, T responds with a reformulating question, asking can't they find the mass of the styrfoam just by placing it on the scale? This is a lower cognitive level question requiring her to recall a process already learned. Then there is a 10-turn side exchange about an earlier topic and in line 8, T repeats his previous question to get the girls back on track. But in line 9, M incorrectly suggests that the single styrofoam popcorn will not make the balance go up and down (presumably because it is too light). In line 10 T follows-up this incorrect answer with a higher cognitive level comparison question, referring to the heavier item she is then weighing "and it will go up and down if this is on here?". Interestingly, he

cannot convince the girls of the error of their ways. So he issues an evaluative comment, "Fascinating," and moves on to another group.

An interaction on the same topic occurred between Teacher A and the LEP students as shown in Transcript 3.

Transcript 3

		((to LEPS, looking at Sarina's journal; reading her journal:))
1	T:	"mass of the graduated cylinder, mass of . . ."
2	S:	the styrofoam
3	T:	"styrofoam (----) ((pointing to her data chart))
4		That's the water?
5	S:	((shakes head yes))
6	T:	(2) What's this? ((pointing to data chart))
7	S:	(------)
8	T:	(3) Water and styrofoam ((checking with her))
9	S:	Yes
10	T:	So the volume of the styrofoam is 5 milliliters.
11		so now you have to find out- (2);
12		why don't you just put the styrofoam on the graduated cylinder, on-on the triple beam balance?
13		Can't you find the mass of this ((holding the popcorn)) just by going like that? ((putting popcorn on balance)).
14	S:	Yeah
15	T:	All right,
16		cause you found the volume of it ((pointing to her chart)).
17		So you could just do mass of styrofoam.
18	S:	OK. ((Sarina rubs her head with confusion or question))
19		Don't we have to do this three time=
20	T:	=Oh, I see, wait, uhm (5)
21		((looking at chart)) you also have to find the mass of this water.
22		(4) If you do 80 milliliters of water, find out how much that, the mass of 80 milliliters of water is.
23		So you if you find this empty, ((referring to the cylinder, pointing to data in her chart)) then you can find the mass of this ((referring to the mass of the water)).
24		Am I confusing you?
25	S:	No
26	T:	No,
27		you know. (1)
28		Okay.

29 But, if you're going to find the mass of this ((points to the popcorn)) dry it off with a paper towel. ((walks away))

Teacher A has initiated this interaction by approaching the LEP students and reading their journal account of the work they are currently undertaking. This is the manner in which T typically approached the LEP students. In contrast, when approaching EP students he asked the students to tell them what information they had derived thus far. So lines 1-10 are a pre-topic check by which T determines that the students have measured the volume of the styrofoam. In line 12 he suggests to them how to next determine the mass of the styrofoam by asking, "why don't you just put the styrofoam on the triple beam balance?" Sarina agrees with his suggested procedure, but in line 19 has a question of her own "Don't we have to do this three times?" She exhibits considerable confusion. To her question, T gives no reaction; he is, instead still seeking to fully understand her chart. The next three lines, 21-23, are revealing, in that they are the typical way in which Teacher A interacted with the LEP students. He issued directives for the procedures they needed to do. This is in direct contrast to how he repeatedly conveyed the same propositions to the EP students - by issuing elicitations.

When I pointed this out to Teacher A, he recognized his use of directives rather than questions and began to list questions he would have used with the other students, such as: "So, what are you going to find next?", or "If you know the volume of the styrofoam, what else do you need to find to determine its density?"

Teacher A had once told me that his major concern with the LEP students was that he did not know how to measure what they understood during discussions. He said that it was easy to assess the other students - whether they were understanding. I asked him how he assessed the other students' understanding. His answer was: "I ask them." Teacher A tended not to use this same technique with the LEP students. Rather, he would tell them what to do next by issuing directives.

Returning to the research questions, the findings would suggest:

Research Question #1) The LEP students' opportunities to talk as frequently as EP students varied with each teacher. This variation was highly dependent on participant structures; in small group lab settings LEP students received increased opportunities to talk; in full class discussions their opportunities were restricted. With regards to use of higher cognitive level questions and open-ended questions, LEP students' overall opportunities to talk purposefully were significantly limited.

Research Question #2) There is less evidence in the findings to suggest that the LEP students' positive face needs were not met (at least, as defined by this study). The teachers' scaffolding responses to the students' talk remained relatively undifferentiated. Furthermore, through referential (answer-unknown) questioning, the teachers attended to the real procedural needs of the LEP students, particularly during the labs. Although the LEP students' positive face needs, as defined by this study, appeared unthreatened, because their opportunities to speak as purposefully as their EP classmates were restricted, one might consider that their negative face needs, those needs to proceed unimpeded, were not met.

Consequences of these findings

The consequences of the above findings are as follows. Given the tripartite nature of the classroom curriculum, the teacher modifications found which limit the interactive opportunties for LEP students a) limit the students' opportunities to co-construct ongoing classroom knowledge; b) restrict their opportunities to practice extended, decontextualized, higher cognitive level talk; and c) reduce the face of and the social role definitions of the LEP students. In short, the LEP students become marginalized.

Explanations for these findings other than limited language proficiency

Following are eight possible explanations for these findings. The first four explanations focus on issues other than limited language proficiency. Because I reject each of these first four explanations, I will mention them only briefly and then turn to the explanations which I consider to be more plausible.

Explanation 1: Observer's paradox is in effect. Rejected: Teachers knew that researcher was looking for interaction with LEP students. If observer were not present, findings could indicate even less interaction.

Explanation 2: Due to small number of LEP students, extraneous explanations (absences, shyness, etc.) for making students unavailable for interaction would skew the results. Rejected: With regards to absences, LEP student was absent only once. With regards to student shyness, relatively even distributions of outgoing and shy types in LEP groups and NS groups were represented.

Explanation 3: Some form of prejudicial behavior prompted the modifications. Rejected: each teacher was recommended based on interactive style and sensitivity to linguistic minority students.

Explanation 4: With regards to cognitive abilities, teachers were responding appropriately to each individual student's level of academic development. Rejected: Certain LEP students showed academic capabilities through assignments and tests; consequently, teachers were aware of LEP students' abilities. Also, no difference in teacher questioning style was found between two LEP students, one of whom is an achiever, and one who is not.

Explanations for the modifications regarding language proficiency

Perceived levels of language competency

Explanation 5: With regards to language proficiency, teachers are addressing individual pupils appropriately according to each student's own level of language competency.

This explanation needs to be considered at three levels: a) the student's demonstrated language ability, and b) varying language competencies determined by varying contexts, and c) the student's ability as perceived by the teacher. All but two of the LEP students interviewed indicated language capabilities sufficient to engage in extended, academic discourse; some exhibited more skill than others. An example of such LEP talk is found in

Section 10 of your handout. However, the students demonstrated this ability in the interviews, not in the classroom. The teachers, therefore, may be unaware of their LEP students' language capabilities. Furthermore, it is unrealistic to expect that the competency required to speak in the nurturing environment of a one-on-one interview can be equated to the competency required to speak in a full class discussion. However, the ability exhibited in the safe context is a good indicator of the learner's potential.

With regards to language abilities as perceived by the teacher, I contend that this is perhaps one of the fundamental explanations for the teachers' limited interactions with LEP students. The three content teachers had not been trained in second language development. Consequently they may underestimate LEP students' abilities to produce extended utterances and therefore call on them less frequently and with fewer open-ended elicitations.

Furthermore, unaware of second language development, content teachers may confuse language skill and academic skill; consequently, they may incorrectly underestimate an LEP student's academic abilities, based on their perception of the student's communicative competence.

Time constraints

Explanation 6: Teachers cannot afford the time required to frequently interact with LEP students; such interactions take too long. At the same time these teachers have twenty other students in the class needing attention and a predetermined curriculum which needs to be covered.

Time is a legitimate concern and has been discussed in the literature. Tobin & Gallagher (1987) In my interviews with all three teachers, references to time and the pressures to cover sufficient material were frequently made.

Two other issues of time might also be proposed as explanations for the modifications found. One is a rhythmic issue. A certain pace of action and classroom talk is maintained by the teacher. This pace is partly determined by unconscious cultural speech settings. For example, after a question, teachers have a range of wait time that is acceptable. This range rarely extends beyond three seconds, after which the wait begins to feel uncomfortable to the teacher, at which point, the teacher frequently supplies the answer, adds a clue, or calls on another student. Given this internal clock, teachers do not allow the LEP student the time needed to express an extended thought, and after a few such awkward interactions (awkward for the teacher's internal clock, not necessarily for the LEP student), teachers become trained to avoid such potentially time-consuming interactions.

A third issue of time is speculative on my part. I suspect there may be internal rhythmic dictates that determine the amount of talk time allowed to a given topic (related to Grice's maxim of quantity.)

Topics often reach quick closure after extended repair work. I suspect that at this point, the NS speaker intuitively feels as if the time on topic is nearing an end based on some internal rhythm meter. S/he may be feeling exhausted given the work required to complete a repair or experience a false sense of completion at the point when the repair work is completed. Consequently s/he moves toward closure rather than to remain on topic to complete any original propositional intentions regarding the topic.

Concern to shelter LEP students from embarrassment

Explanation 7: Teachers want to spare the LEP students any unnecessary embarrassment.

Frequently, the teachers spoke about this concern; that the LEP students may be embarrassed if asked to answer a question and they make a grammar error.

But it was clear to me in my observations that when a misunderstanding based on English errors occurred, the embarrassment, or the awkwardness, was felt equally by the teachers. This teachers' awkwardness might be indicative of a lack of understanding of a second language development model which forecasts errors will be made as new language is practiced in the real speech environment.

In any event, the teachers' attempts to mitigate any embarrassment felt by the LEP students - by filling in their answers, by refraining from asking difficult questions, by doing for the student rather than allowing the student to do - ultimately reduced the role the LEP students could take in the classroom. Hatch (1992) referred to some of these modifications as a benevolent conspiracy.

LEP students don't understand

Explanation 8: Often when teachers try to talk with LEP students, it appeared as if the students were lost; it was evident to the teachers that the LEP students often did not understand fully what was going on.

This is a legitimate concern for content teachers, unfamiliar with stages of L2 development. They are unaware of how long it takes for LEP students to adjust to the flow of constant, rapid English content. Strategies exist to help the LEP students during this process, such as pairing them with an EP student or providing more written framing. However, until the time that content teachers are trained in such strategies, their concern that their LEP students may be lost, and their consequential avoidance of asking frequent or difficult questions of the LEP students is to be expected.

Closing

In closing, there is evidence to support that NS content teachers are modifying their discourse when interacting with LEP students, in ways that reduce the LEP students' opportunities to interact. If NS teachers are unwittingly reducing LEP students' interaction opportunities, we may need to expand our current research and training agenda and include ways in which content teachers can learn to alter their discourse strategies in talk to LEP students to create more responsive and productive speech environments.

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Appendix A

Teacher Descriptions

Teacher A
7th and 8th grade science
8 Russian speaking girls, 4 in each grade
grade 8: 2 girls here only two weeks; two here for 1-2 years.
2 senior girls have good science grades. Spoke extended science discourse in interviews.
grade 7: all 4 girls here for 1-2 years. 2 earned good science grades, one of which was extremely outgoing. Other two defined as "shy".
Teacher style - highly dialogic. Much student interaction. Students reacted to other students comments rather than teacher reacting. Frequent use of high cognitive questions.

Teacher B
high school non-college prep science for juniors and seniors
3 Southeast Asian students, one male Vietnamese; one male Cambodian; one female - country of origin unknown. Female believed to have learning disability, much difficulty in class. Vietnamese male reported as a good student with good test scores; though he told me he did not like to work in science. Had been in bilingual programs in for past 2.5 yrs. Cambodian male had been in country 6 years; elected to be in English-only classes always. Had college plans, worked independently and quietly; did not value classroom interaction, but indicated ability to speak extended science discourse in interview.
Teacher style - worked hard to maintain discipline in disinterested class. Used traditional IRF format. Few high cognitive questions. Interaction with LEP students highly dependent on participant structures, as Table 1 shows.

Teacher C
7/8 grade science in suburb of city; large Haitian school population
3 LEP students, all Haitian, two girls, one boy; all just mainstreamed from bilingual science course. This is their first English-medium classroom. One girl was a leader and achiever in the bilingual science class; other girls not serious about studies at all. Boy worked hard in class; aides as much as possible in class. All three indicated ability to talk extended science discourse in interviews.
Teacher style - highly polyphasic, many students talking aloud at once at all times. Most talk about paper work; science questions were on the paper, but were not talked about. LEP student interaction highly dependent on participant structure; received many opportunities in small group events; limited opportunities in full-class discussion. See Table 2.

Appendix B. Coding for Initiation, Response, Feedback Moves & Acts

MOVE		ACT
Initiation/ **S**caffold-Initiation	I/S:	**el**icitation *(questions, statements that elicit verbal response)*
	I/S:	**ch**eck *(polar questions which enable teacher to determine if student can proceee; also comp checks and confirmation checks)*
	I/S:	**d**irective *(commands that elicit a non-verbal response)*
Response	R:	**rep**ly *(answers, accepts, clues, comments)*
	R:	**p**rompt
	R:	**el**icitation
	R:	**ch**eck
	R:	**d**irective
Feedback	F:	**acc**ept *(repetition, paraphrasing, back-channels)*
	F:	**eva**luate *(explicit or exaggerated tonal)*
	F:	**com**ment *(answer, clue, rhetorical & tag questions, expand, inform)*
	F:	**p**rompt
	F:	**el**icitation:
	F:	**ch**eck
	F:	**d**irective
	F:	**cue**

Examples of acts:
elicitations: "Which is the dominant trait?"; "Tell us how to determine the dominant trait."; "Go to the board and explain. . ."
directives: "You need to measure the mass of clay." "Show me your answer."
checks: "Are you ready?"; "Alright?"; "Are you finished?"

Types of scaffolding elicitations:
Feedback - to reformulate a student answer which is either incorrect or insufficient
Response - to reverse direction of inquiry by responding to a student question with a question
Scaffolding-Initiation - to further challenge a student after a successfully completed exchange

Elicitations coded further: i) higher/lower cognitive levels; ii) open-ended or closed; and iii) display (answer-known) or referential (answer-unknown)

Appendix C
Summary Table

MODIFICATIONS IN NS TEACHER TALK TO EP STUDENTS AND LEP STUDENTS

Modifications	Teacher A	Teacher B	Teacher C
1. Distribution of Initiation, Follow-up, Response Acts	No difference	No difference	*** more I/S to LEP
2. Distribution of Initiation acts el = elicitations d = directives to action ch = checks	*** more I:els to EP ! more I:ds to LEP ! more I:chs to LEP (in frequency, I:els are proportionate)	! low I:els in half of talk to LEP No claim: due to low expected cell frequencies in LEP talk. (in frequency, more I:els to EP)	*** more I:els to EP *** more I:ds to LEP (diff. in proportionate distribution only; in frequency, proportionately more I:els to LEP than EP)
3. Distribution of all directives and elicitations	*** more ds to LEP *** more els to EP (slight)	** more ds to LEP ** more els to EP (slight)	* more ds to LEP
4. Distribution of all elicitations according to participant structures	N/A	*** more els to EP (low-0 els to LEP in some speech events)	** more els to EP in T-G ** more els to LEP in T-P
5. Distribution of scaffolding elicitations	No difference overall; ! more S:el to EP in lab setting	* more els to LEP (due primarily to one participant structure, one particular lab setting)	No difference in proportionate distribution. (re: frequency - in full class, 0 els to LEP; in lab, more els to LEP)

! = trend; * = significance of $p<.05$; ** = significance of $p<.01$; *** = significance of $p<.001$

MODIFICATIONS OF NS TEACHER TALK (Summary Table continued)

Modifications	Teacher A	Teacher B	Teacher C
6. Frequency of Follow-up acts	! more F:directives to LEP ! more F:evaluatives to LEP ! more F:comments to EP	*** more F:directives to LEP ** more F:comments to EP	No difference
7. Frequency of Response acts	No claim	! more R:d to LEP	*** more R:rep to EP *** more R:d to LEP
8. Cognitive levels of all elicitations	*** more High to EP	No difference (few High used throughout)	*** more High to EP
9. Cognitive levels of Initiation elicitations	! more High to EP No claim: 0 High to LEP	! more High to EP (0 High to LEP)	*** more High to EP (0 High to LEP)
10. Cognitive levels in scaffolding elicitations	*** more overall High els to EP ! more High S:els to EP ** more High F:els to EP	No difference	No difference (0 elicitations to LEP in full class structure)

! = trend; * = significance of $p<.05$; ** = significance of $p<.01$; *** = significance of $p<.001$

MODIFICATIONS OF NS TEACHER TALK (Summary Table continued)

Modifications	Teacher A	Teacher B	Teacher C
11. Distribution of all open/ closed elicitations	*** more Open to EP	* more Open to EP	No overall difference; more Open to EP in full class discussions.
12. Distribution of open/closed Initiation elicitations	! more Open to EP	* more Open to EP	No overall difference; more Open to EP in full class discussions.
13. Distribution of referential (U)/ display (K) elicitations in all moves	No Difference	* more U to LEP (due to lab setting)	*** more U to LEP (due to lab setting)
14. Transactional turns: how allotted and ratio of frequency	* more volunteered by EP * more designated to LEP EP : LEP - 1 : 1	! more volunteered by EP EP : LEP - 1.5 : 1	** more designated to LEP EP : LEP - 1 : 2

! = trend; * = significance of $p<.05$; ** = significance of $p<.01$; *** = significance of $p<.001$